

REMARKS

Claim 3 is the only amended claim, and is amended to correct an obvious clerical error.

The examiner has rejected claims 1-16 and 18-19 as unpatentable over Jang U.S. Patent No. 4,744,366 further in view of Rydell U.S. Patent No. 4,811,733, and Burns et al. U.S. Patent No. 5,176,698. Also, for some of the claims, Carlblom U.S. Patent No. 5,637,365 and Follmer et al. U.S. Patent No. 5,728,065 are included.

Some of these references have been previously discussed by both the examiner and applicant's attorney.

Turning first to Jang, and the response to the arguments raised by the examiner in paragraphs 4, 6 and 7, the examiner states that there is no structural difference between Jang and the catheter of this invention relative to the requirement in the present claims 1, 6, and 11 found in the last three lines of each of those independent claims. The last three lines of the claims read: “. . . at least one vent aperture for purging air from said inflation lumen, said aperture extending radially through said outer tubular wall of the outer tubular member at a location proximal of the proximal portion of the inflatable balloon.”

The attention of the examiner is directed to column 12 of Jang, lines 21-26. This language reads: “Although a special lumen may be provided, the holes 36, 40 preferably are connected only to the central lumen 22 and do not interrupt any other lumen. Thus these holes provide a means for permitting the flow of blood through the catheter shaft past the balloons 16, 20.” (Emphasis added). See Fig. 6 in Jang.

Thus, there is a difference in the structure of Jang, found in the teaching that the side holes 36, 40 of Jang connect to a lumen, but in this present application the

connection is to a peripheral inflation lumen, and in Jang, the connection is to the central lumen 22 that extends axially through the catheter without any communication with the balloon, so that it is not capable of acting as an inflation lumen.

Furthermore, note the purpose of the holes 36, 40 as taught in the above-quoted text of Jang. It is for the purpose of "...permitting the flow of blood through the catheter shaft past the balloons 16, 20." In other words, in Jang, as shown in Fig. 6, holes 36, 40 communicate with central lumen 22 to provide a blood flow path! That being said, it is also very clear that the holes of Jang 36, 40 are by no means of the preferred size of the "vent aperture" 50 (purge aperture 50 as called for on page 10, lines 21 of this present application). As called for in claims 2, 3, 7, 8, 12 and 13, the vent aperture is of such a small size that those skilled in the art, having Jang before them, would simply not be led to form holes of that dimension, (even if such holes were to communicate with the inflation lumen, which is something that Jang teaches away from) because holes 36, 40 must pass blood.

It is manifest that the holes 36, 40 of Jang will be larger diameter holes, and not anywhere near the tiny vent apertures called for in the last cited six claims, because the small holes called for do not pass liquids, including blood! It is clearly not obvious to use the holes 36, 40 of Jang when they are too small to pass blood!

The examiner has cited Rydell to disclose the specific size of venting ports in a balloon catheter, which ports are taught to be small, like slit 26, for a corresponding hole.

However, the location of slit 26 is simply wrong for the purposes of this invention. In all of the claims of this application, the vent aperture must be "...at a location

proximal of the proximal portion of the inflatable balloon.” See the last line of claim 1 and other corresponding claims.

As stated in the previous amendment, “More predictable results of venting can be provided when the venting aperture is placed on a stable, non-expanding structure such as the outer tubular member of this invention rather than the inner tube 12 surrounded by the balloon. The inner tube 12 receives a guidewire, which can block venting flow and thus interfere with operation of the catheter of Rydell.”

The examiner also has cited Burns for the use of a gas permeable balloon. However, notice that Burns also exhibits the failing of the previous references, in that the vent that is present (venting lumen 43) is positioned inside of the balloon, thus providing no teaching of the last three lines of each of claims 1, 6, and 11. This limitation in the independent claims is of course shared by the dependent claims.

Accordingly, it is submitted that Jang, Rydell, and Burns, even in considered in combination, simply do not teach the invention of this application, particularly the limitation of the last three lines of each of the independent claims.

The examiner also cites Carlblom U.S. Patent No. 5,637,365 for the teaching that polyolefin is a “gas permeable material”. Indeed, polyolefin balloons are known per se, as well as other gas permeable balloons. However, this does not address the above argument, and the distinction of particularly the last three lines of each of the independent claims of this application.

Follmer et al. U.S. Patent No. 5,728,065 calls for a constraining member to be placed over the balloon, which is shown in the specification, but is covered only in claim

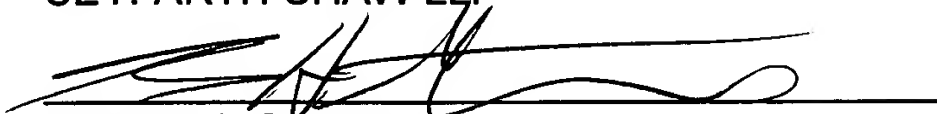


15, which claim shares in the distinguishing limitations of those claims from which it depends.

In view of the above, allowance of the claims is respectfully requested.

Respectfully submitted,


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